

ABSTRACT

The present invention provides such a gas discharge type display panel that has a high mechanical strength and a high reliability is enabled to be driven with lower voltage, and providing a higher brightness and sized in a large dimension, and its manufacturing method with higher production efficiency. By means of applying the sealing operation along with the exhausting operation, the sealing glass 14 is made broken down by the pressure difference between the inside and outside of the panel, and thus, the clearance gap between the substrates can be controlled to be desired. In addition, the gaseous component unnecessary for the discharge operation is exhausted by keeping the temperature of the amorphous sealing glass exceeding its softening-point and no more than its working point. In the structure of the gas discharge type display panel, a protruding portion having a curvature radius between 0.1 mm and 1mm is formed on the sealing glass in order to reduce the dispersion in the thickness of the sealing glass, or the cross-sectional shape of the sealing glass is made convex with respect to the internal space both at its inside end part and its outside end part.

(51) 国際特許分類7 H01J 9/26, 11/02	A1	(11) 国際公開番号 WO00/45411
		(43) 国際公開日 2000年8月3日(03.08.00)
(21) 国際出願番号 PCT/JP00/00476		
(22) 国際出願日 2000年1月28日(28.01.00)		
(30) 優先権データ 特願平11/21221 1999年1月29日(29.01.99)	JP	村瀬友彦(MURASE, Tomohiko)[JP/JP] 河合通文(KAWAI, Michifumi)[JP/JP] 佐藤了平(SATO, Ryohei)[JP/JP] 加藤義弘(KATO, Yoshihiro)[JP/JP] 〒244-0817 神奈川県横浜市戸塚区吉田町292番地 株式会社 日立製作所 新ディスプレイ事業推進センタ内 Kanagawa, (JP) 松岡康博(MATSUOKA, Yasuhiro)[JP/JP] 〒244-0817 神奈川県横浜市戸塚区吉田町292番地 株式会社 日立製作所 生産技術研究所内 Kanagawa, (JP)
(71) 出願人 (米国を除くすべての指定国について) 株式会社 日立製作所(HITACHI, LTD.)[JP/JP] 〒101-8010 東京都千代田区神田駿河台四丁目6番地 Tokyo, (JP)		(74) 代理人 弁理士 作田康夫(SAKUTA, Yasuo) 〒100-8220 東京都千代田区丸の内一丁目5番1号 株式会社 日立製作所内 Tokyo, (JP)
(72) 発明者 ; および (75) 発明者 / 出願人 (米国についてのみ) 元脇成久(MOTOWAKI, Shige hisa)[JP/JP] 内藤 孝(NAITO, Takashi)[JP/JP] 鈴木康隆(SUZUKI, Yasutaka)[JP/JP] 〒319-1292 茨城県日立市大みか町七丁目1番1号 株式会社日立製作所 日立研究所内 Ibaraki, (JP)		(81) 指定国 JP, KR, US 添付公開書類 国際調査報告書

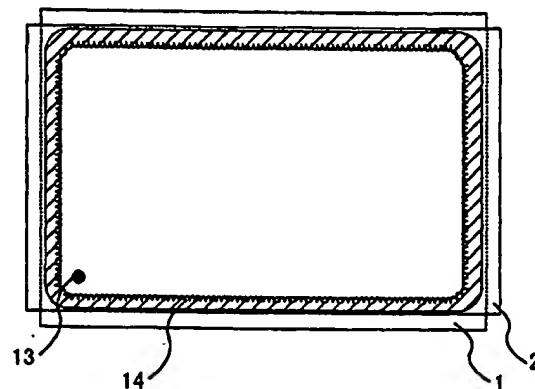
(54)Title: GAS DISCHARGE TYPE DISPLAY PANEL AND PRODUCTION METHOD THEREFOR

(54)発明の名称 ガス放電型表示パネルおよびその製造方法

(57) Abstract

A high-luminance, large-screen gas discharge type display panel high in strength reliability and capable of low voltage driving, and a high-efficient production method therefor, wherein a pressure difference between inside and outside of the panel produced by sealing while evacuating is used to crush sealing glass (14) to set a space between substrates to a desired size, and the part of gas unneeded for discharging is evacuated with the sealing amorphous glass kept within a temperature range, above its softening point and below its working point. The gas discharge type display panel has projections the radius of curvature of which is at least 0.1 mm and up to 1 mm formed on the sealing glass to suppress variations in sealing glass thickness, or has the cross section of the sealing glass curved outwardly toward the inner space side at both inner side end and outer side end.

(a)



(b)

